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AR 226 - 3470



From: Barbara J Dawson on 03/05/99 10:23 AM
 To: Carol S Lyell/AE/DuPont@DuPont
 cc:
 Subject: 1978-79 Chambers Works Organic Fluorine in Blood Monitoring Program

At your request, I have reviewed and summarized the data contained in the Chambers Works Medical topical files concerning the study performed in 1978-79 on organic fluorine levels in the blood of Chambers Works employees.

Background

In 1978, prompted by a report by another company that elevated organic fluorine levels had been observed in the blood of their workers who had been exposed to certain fluorinated surfactants, DuPont initiated a study of the workers potentially exposed to DuPont fluorosurfactants. Although CW did not handle the specific chemical manufactured by the other company and used a different manufacturing process for the fluorosurfactants manufactured at the site, DuPont performed this study which included an assessment of airborne concentrations of fluorosurfactants, measurement of fluorine levels in the blood and a review of medical files to determine if any adverse health effects could be associated with the exposure.

Overview

Personal and fixed station air monitoring was conducted to identify sources of exposure. Normal conditions within the manufacturing building showed an average 8-hour time-weighted average (TWA) concentration of <0.25 ppm with occasional excursions to an 8-hour TWA of 2 ppm. The air sampling suggested that the drumming operation was the most likely source of exposure.

Chambers Works employees were identified who had job assignments with potential for exposure to fluorochemicals. (see Table 1 for a breakdown by job assignment). A subset of these employees were selected for blood monitoring to be representative of the larger group. Blood samples were taken during their regularly scheduled physical exams and analyzed for total fluorine and inorganic fluorine. A control group of DuPont office workers stationed in Wilmington, DE was also tested. Results of the blood monitoring are summarized in Table 2. In addition to the blood monitoring, the medical staff reviewed the medical records of the larger group and found no adverse health effects attributable to exposure to fluorochemicals.

Table 1 Chambers Works Employee Cohort

Assignment	Number Identified	Number Tested
R&D	50	18
Semi-works	36	6
Manufacturing	84	26
Historical*	29	5
Total	199	55

* Employees who previously held one of the other identified assignments

Table 2 Blood Testing Data

Wilmington Control Group		
Number of samples	25	
Samples in analysis	23	
Range	0 to 0.38 ppm organic fluorine* (minus two outliers - 10.6 ppm and 0.78 ppm)	
Median	0.094 ppm	